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Division of Equipment

Equipment Quality Standards -- PAINT and COATINGS

Purpose - This document describes the minimum paint and coating quality standards required by Caltrans, Division of Equipment (DOE) for the equipment fleet.

Scope - This Caltrans DOE standard defines general requirements for coatings and quality assurance criteria.

Revision Date - February 13, 2002

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	Prior Revision (February 13, 2002)

REFERENCES and TERMINOLOGY

References -

- "National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings", from the Clean Air Act (Federal law, September 11, 1998, <http://www.epa.gov/ttn>)
- South Coast AQMD "Rule 1151: Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations".
- "Method for Evaluating the Paintable Characteristics of Automotive Sealers", SAE J1800 APR87
- Federal Motor Vehicle Safety Standard (FMVSS) No. 108, Section 5.7

- Title 17 California Code of Regulations, section 93112, "Hexavalent Chromium and Cadmium Airborne Toxic Control Measure - Motor Vehicle and Mobile Equipment Coatings

Terminology -

Adhesion: The ability of dry paint to attach to and remain fixed on the surface without blistering, flaking, cracking or being removed by tape.

Catalyst: a substance that initiates or accelerates a chemical reaction without itself being affected

Gloss: The luster or shininess of paints and coatings. Trade practice recognizes the following gloss levels, in increasing order of gloss: flat (or matte)-- practically free from sheen, even when viewed from oblique angles (usually less than 15 on 60° meter); eggshell-- usually 20-35 on 60° meter; semi-gloss--usually 35-70 on 60° meter; full-gloss--smooth and almost mirror-like surface when viewed from all angles, usually above 70 on 60° meter.

Gloss Meter: A device for measuring the light reflectance of coatings. Trade practice normally measures a scale from 0 to 100 at 60° and at 20°.

High Solids - paints containing 60% to 80% solids. Uses less solvents. Usually must be applied hot in order to have sprayable viscosity.

Lead: A toxic heavy metal, previously used as a pigment or drying agent in paints.

Orange Peel: Wavy structures between 0.1 and 30 mm in structure size is referred to as orange peel or poor flow and leveling. These phenomena are often visually evaluated and subjective terms like degree of peel or texture are used as descriptions. Orange peel can be seen on high gloss surfaces as a wavy pattern of light and dark areas.

Paint or coating - a pigmented film forming material used for corrosion protection and/or decoration.

Primer: First complete coat of a painting system applied to a surface. Such paints are designed to provide adequate adhesion to new surfaces or are formulated to meet the special requirements of the surfaces.

Topcoat - final coat, finish coat. The actual film which meets the eye.

Undercoat - any paint film beneath the topcoat

Urethane: An important resin in the coatings industry. A true urethane coating is a two-component product that cures when an isocyanate (the catalyst) prompts a chemical reaction that unites the components.

1. GENERAL REQUIREMENTS

1.1 Caltrans Standard Coating and Colors

Caltrans standard topcoat colors and type of paint shall be: (choose one of the following brands for each color)

Color	Supplier	Brand	Content Identification Number	Name of Color	Example Application *
Caltrans Orange	DuPont	Imron 5000	N2872HN W	"Omaha Orange"	Some Truck Bodies, Light Racks, Outside Parts
	PPG	Delta DUHS	2.8 #61696		
	Sherwin Williams	Genesis	G8-64487**		
Fleet-White	DuPont	Imron 5000	N6431 HN H	"Winter-White"	Cab, Work Vehicle Bodies
	PPG	Delta DUHS	2.8 #90604		
	Sherwin Williams	Genesis	G8-40687**		
Black	DuPont		333M/42P	Black High Solids Polyurethane Enamel	Chassis
	PPG		#9714		
	Sherwin Williams		G8-56590**		
Grey	DuPont		N0017HN H	Gray	Interior Surfaces
	PPG		#35937		
	Sherwin Williams		G8-57991**		

* Specific applications for each color are called out in drawings and specifications for each job.

** For locations outside California, "GC-" followed by the five digit number is acceptable.

1.2 Paint Suppliers

For supplier information, contact:

DuPont Automotive Russ Williams, Fleet Sales Specialist 3180 Crow Canyon Place, Suite 105 San Ramon, Ca 94583-1339	Tel: (925) 355-0540 Fax: (916) 789-9812 VM: (800) 994-6245 ID 130-5437 Email: Russ.A.Williams@usa.dupont.com
PPG Industries, Inc. Tim Bellefleur Market Development Manager, Commercial Coatings 19699 Progress Drive Strongsville, Ohio 44136	Tel: (440) 572-6182
Sherwin-Williams Automotive Finishes Corp. Mike Wolcott, Fleet/OE Sales Representative 754 Kevin Court Oakland, CA 94621	Tel: (510) 632-9615 Fax: (510) 632-2915 Email: bayareaswsales@sbcglobal.net

1.3 Coating Application & Material Specification

Surface preparation, undercoating and top coating application process shall be specified by the coating supplier. All undercoating materials shall be provided by the same supplier as the topcoat material. Refer to the application process and related product specification by each supplier in the appropriate Appendix.

DuPont	Appendix B
PPG Industries	Appendix C
Sherwin-Williams	Appendix D

1.4 Substitutions

No substitutions from 1.1 for any coating material shall be made without the written consent of Caltrans. Approved substitutions shall comply with all test requirements listed under section 2. Testing and compliance with these conditions as well as any and all costs associated with compliance tests shall be paid by the vendor. Results of all test requirements must accompany the request for approved substitution.

1.5 Coating Workmanship

All coated surfaces shall be prepared in accordance with the paint supplier's recommendations, as described in Appendix B, Appendix C or Appendix D, to provide maximum coating adhesion, durability and finish. All metal surfaces shall be undercoated in accordance with the paint supplier's recommendations, as described in Appendix B, Appendix C or Appendix D, not less than 2 mils dry thickness. The topcoat shall be not less than 2-mil dry film thickness (total of 4 mils). The topcoat shall be free from runs, drips, sags, or any other undesirable condition listed in Appendix A, and shall be evenly applied to provide a gloss finish. The topcoat shall be compatible for re-coat or touch-up with the corresponding coating and color specified in 1.1.

Chassis mounting scars due to mounting body and equipment shall be repaired as necessary and refinished. Any coating overspray (glass, paint, rubber, etc.) shall be removed and the surface returned to its original condition.

1.6 Body Filler

Body filler is not acceptable on new equipment.

2. TEST REQUIREMENTS

2.1 Lead-free

All coating materials used on Caltrans equipment shall be lead-free. "Lead-free" means that there shall be less than 300 parts per million (less than 0.03%) by mass of lead in the dry finished coating. Testing uses Atomic Absorption Spectroscopy by the EPA 7420 method and uses paint samples scraped to bare metal.

2.2 Hexavalent Chrome

All coating materials used on Caltrans equipment shall comply with Title 17 California Code of Regulations, section 93112 pertaining to content of hexavalent chrome.

2.3 Standard Tests

2.3.1 Film Hardness Test

The outcome of ASTM D 3363 "Pencil Hardness" test shall be at least a 2H rating.

2.3.2 Gravelometer

The outcome of an ASTM SAE J-400 JAN85 Gravelometer test shall be at least 6 B topcoat to undercoat.

2.3.3 Forward Impact

The outcome of an ASTM D-2794 Forward Impact test shall be at least 50 inch pounds.

2.3.4 Ultraviolet Resistance

The outcome of an ASTM G-53 test shall be 70% gloss retention or higher.

3. QUALITY ASSURANCE REQUIREMENTS

3.1 Assurance of Lead-Free and Hexavalent Chromium-Free Content

Vendors shall provide written assurance that the paint is lead-free and hexavalent chromium-free. If paint from section 1.1 is used, documentation of the brand and color identification from the manufacturer is acceptable. For coating materials other than those listed in section 1.1, the vendor shall procure independent laboratory testing of the paint. The independent laboratory shall be accredited by one of the accrediting organizations under EPA's National Lead Laboratory Accreditation Program. The laboratory test method shall use ASTM D4834 "Test Method for Detection of Lead in Paint by Direct Aspiration Atomic Absorption Spectroscopy". The test shall be performed on a dry coating sample scraped to bare metal. Laboratory test results shall be reported directly to Caltrans.

All vendor provided paint is subject to random lead and hexavalent chromium testing by Caltrans.

3.2 Assurance of Air Quality Compliance

All coating materials and application processes used on Caltrans equipment inside California shall comply with the Volatile Organic Compound (VOC) requirements of the SCAQMC Rule 1151 and the hexavalent chromium requirements of Title 17 CCR, section 93112.

3.3 Solvent Resistance Test

Where Caltrans Orange or Fleet White coating is specified, the topcoat shall be tested by at least twenty rubs of a toluene based lacquer thinner soaked cloth. The test consists of ten bi-directional rubs using a pressure of approximately 25

psi and a lint-free, white cotton cloth. The topcoat must retain its luster and the white cloth must not pick up any color from the paint.

3.4 Visual Inspection Criteria

The paint surface shall be visually inspected for orange peel and the undesirable characteristics listed in Appendix A. Passing these criteria is at the discretion of the Caltrans inspector.

3.5 Film Thickness Test

A minimum dry film thickness of 4-mils is required. The quality inspector may perform film thickness measurements. Location and number of measurements are at the discretion of the Caltrans inspector.

3.6 Color Match

Caltrans maintains a set of standard paint color samples. These samples are made available to vendors bidding on Caltrans jobs. A color match between the sample and the finished product is required under daylight conditions. The degree of the match is at the discretion of the Caltrans inspector.

3.7 Gloss Test

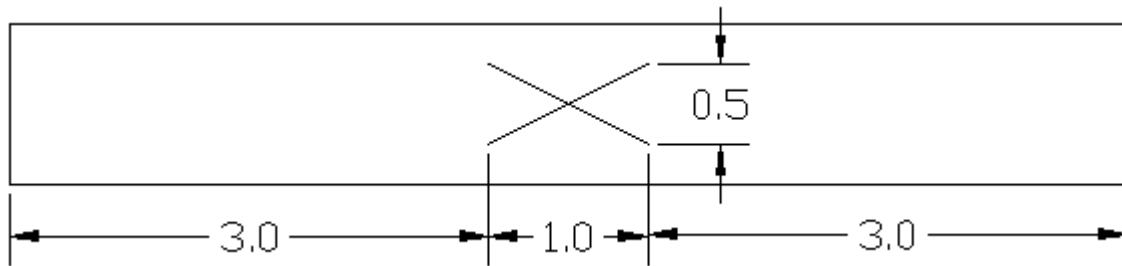
Caltrans orange paint applied to bodies shall achieve a minimum gloss measurement of 85 at 60° using a Horiba IG-330 gloss meter.

3.8 Adhesion Test

Adhesion of the coating film to its substrate is measured by jerking the paint away from a scribed "X" with a strip of cellophane tape. The following Figure illustrates the test procedure. The cellophane tape (3M Company #600 Crystal Brand) is pressed down with an eraser three inches in each direction beyond the ends of the "X". The tape is jerked quickly back on itself as nearly in the plane of the surface as possible. Test results are evaluated according to the following table.

Numerical Ratings for Tape Adhesion	
1	Peeling beyond lines and tape
2	Peeling beyond lines and under tape
3 to 6	Use subjective judgment
7	Jagged peeling along lines to 1/8"
8	Smooth peeling along lines to 1/16"
9	Trace of peeling
10	No peeling

Test location(s) are at discretion of the Caltrans inspector. A numerical rating of 8 or higher is required.



APPENDIX A - UNDESIRABLE CONDITIONS, GLOSSARY OF TERMS

From SAE J1800 APR87 "Method for Evaluating the Paintable Characteristics of Automotive Sealers", section 9, Appendix - Glossary of Terms.

In addition to the adhesive characteristics of a paint film, there are a large number of undesirable conditions that may arise due to a paint-sealer incompatibility. The following is a partial list of these undesirable conditions and the tester should take note of these in general and any others specifically requested.

Alligatoring—A uniform distribution of surface cracking in a symmetrical pattern resembling the skin of an alligator.

Black Lining—Dark lines that appear along the tops of ridges in the sealer due to paint flowing down the sides of the ridges.

Blistering—Raised areas on the paint's surface due to volatile substances coming out of the sealer after the topcoat has started to "cure."

Blushing—A lightening of the paint's hue due to moisture in the air, moisture in the sealer, or poor hiding power of the topcoat.

Cracking—Separations in the topcoat film before or after baking. Cracking can be caused by shrinkage of the paint film during the bake cycle, swelling of the sealer after the topcoat has started to cure, or sliding of the uncured paint film on the uncured sealer due to incompatibility.

Cratering—Round depressions in the paint's surface, usually due to contaminants in the paint or on the surface being painted.

Discoloring—A change in the absolute color of the topcoat usually due to a chemical interaction between the topcoat and the sealer.

D.O.I.—Distinctness of Image.

Dulling—A reduction in the level of gloss, or D.O.I., of the topcoat, usually due to an interaction between the topcoat and the sealer beneath.

Fish Eyes—Circular areas devoid of topcoat caused by the wet paint "drawing" in on itself due to surface contaminants such as oil or silicones or a general incompatibility of paint and sealer.

Metal Flake Re-Orientation—A uniform change, over the sealer, in the apparent color of a metallic topcoat. This difference is independent of the configuration of the sealer bead. It appears to be related to light reflecting off the metallic flakes

which have shifted their relative positions from that of the rest of the panel, probably the result of floating, or vertical pigment separation, due to currents set up in a Bernard cell.

Metal Flake Mottling—A puddling of the metallic and non-metallic pigments in a topcoat giving it a blotchy appearance.

Pinholing—Small holes, the size of a pinpoint, in the surface of the topcoat that result when small bubbles burst as the paint cures.

Popping—Usually refers to a fairly uniform distribution of small blisters caused by the volatilization of entrapped solvent beneath a topcoat that has started to cure. The volatile material can be from the sealer coated or from a layer of paint that is excessively thick.

Running—A movement or flowing of wet topcoat over the sealer caused by a paint-sealer incompatibility or an excessive application of topcoat.

Seedy Appearance—A paint-sealer incompatibility causing pigment (our intended readers won't know this one) beading to a surface that is spotted with raised "grainy" looking particles.

Soft Paint—A paint film that has not achieved its specified hardness. This can be caused by the migration of plasticizers, into the topcoat, from the sealer, or by the sealer chemically retarding the topcoat's curing system.

Staining—A discoloring of the topcoat due to a sealer-topcoat interaction.

Tacky Topcoat—A more severe form of a "soft paint" in which the sealer has interfered with the topcoat curing mechanism to the degree that fingerprints can be left on the paint's surface.

Yellowing—A particular form of staining, in which a yellowish stain appears, usually-associated with light color topcoats.

Wrinkling—A paint-sealer incompatibility which causes the topcoat's surface to cure at a different rate resulting in the formation of ridges. These ridges can vary in absolute size but generally are uniform in size on any one particular panel.

APPENDIX B - DUPONT PAINT AND PROCESS SPECIFICATION

1. Double check for missing or bad welds, missing options, etc. Try to avoid having to burn up new paint, which will need touch up.
2. Scrape off welding spatter. Grind or sand to bevel all sheared or sharp edges. This will help to prevent corrosion from appearing prematurely in these areas.
3. Sandblast or Phosphate Wash thoroughly.
4. If Phosphate Wash is used, all rust and mill scale must be sanded off prior to wash. All sanding, grinding, and scraping must be done prior to wash.
5. Units need to be primed as soon as possible after metal treatment to avoid contamination, or corrosion.
6. Prime with DuPont Corlar® 934S Epoxy Primer, or DuPont V2910S DTM Epoxy Primer. Follow instructions provided on Product Data Sheets for these products.
7. Topcoat with DuPont Imron® 5000. Follow instructions provided on DuPont Product Data Sheets.

For information on DuPont and DuPont products, including PDS and MSDS, log on to <http://www.performancecoatings.dupont.com/>, or contact your local DuPont representative.

Viewing the following documents requires Adobe Acrobat Reader. Return to this document by pressing your browser's "Back" key. These documents are provided by the paint/coating supplier and do not alter or modify the requirements of the Caltrans' standard.

APPENDIX C1

PPG INDUSTRIES PAINT PROCESS SPECIFICATION

Date: December 3, 2001

This bulletin provides the vehicle maintenance painter with the proper procedures to be followed when painting Caltrans vehicles and equipment with PPG's Delta™ product system. These procedures must be followed to ensure the proper adhesion of paint. Use the following steps, in conjunction with the correct PPG Product Information Bulletin.





1. Initial Cleaning and Preparation

- Power wash the entire unit and dry off.
- Air blow all surfaces completely
- Refinish area to be completely sanded using 220 grit dry.
- Air blow all surfaces completely
- Tape off unit.
- Clean areas to be painted with PPG's Delta Cleaner **DRS436** or **DRS438**. Refer to product bulletin FL100 for more information.
- Move to primer application.

2. Body Work (If needed)


- Apply premium plastic body filler such to needed areas.
- Sand filler areas with 80 grit dry.
- Fill pinholes with glaze with a premium two part glazing putty.
- Use 220 grit to sand over glazed areas
- Blow off the unit.
- Clean with PPG's Delta Cleaner **DRS436** or **DRS438**. Refer to product bulletin FL100 for more information.

3. Application of Primer- DPU217 2.1 VOC POLYURETHANE PRIMER

<p>Mix Ratio 2.1 VOC</p>  <p>5 parts DPU2171 part DPU2183-6 oz./RTS gallon of DX39.</p> <p>Shake primer before using</p>	<ul style="list-style-type: none">• If unit has been sitting for 6 hours or longer from the time of initial cleaning and sanding, the unit should be resanded using 180 or 220 grit dry and recleaned.• Before applying primer, metal needs to be up to temperature. (60° F)• Mix PPG's DPU217 primer. Refer to product information bulletin FL304.  <p>Pot life for 2.1 VOC is 1½ - 2 hours at 70° F.</p> <p>Use DX-53 to assist with pot life in high temp. (over 90° F)</p>									
<p>Mix Ratio 2.8 VOC</p>  <p>5 parts DPU2171 part DPU218 3-6 oz./RTS gallon of DX39.</p> <p>1 Part DRS Reducers</p> <p>Shake primer before using</p>	<p>When adding DRS Reducers in the 2.8 VOC blend, for best results, the DRS Solvents must be added last, after the addition of the DX39/53</p>  <p>Pot life for 2.8 VOC is 1½ - 2 hours at 70° F.</p> <p>Use DX-53 to assist with pot life in high temp. (over 90° F)</p> <p>Apply primer product following the procedures for the interior and exterior of unit achieving the appropriate film build above body filler or abraded areas.</p> <table border="1"><thead><tr><th>2.1 - 2.8 VOC</th><th>Wet</th><th>Dry</th></tr></thead><tbody><tr><td>Min total film build per coat</td><td>1.8 mils</td><td>1.0 mils</td></tr><tr><td>Max total film build per coat</td><td>2.3 mils</td><td>1.3 mils</td></tr></tbody></table> <ul style="list-style-type: none">• Apply 1 to 2 coats of DPU217 primer to the exterior areas of the unit achieving appropriate film build.• Allow 10-15 minutes between coats.	2.1 - 2.8 VOC	Wet	Dry	Min total film build per coat	1.8 mils	1.0 mils	Max total film build per coat	2.3 mils	1.3 mils
2.1 - 2.8 VOC	Wet	Dry								
Min total film build per coat	1.8 mils	1.0 mils								
Max total film build per coat	2.3 mils	1.3 mils								

3. Application of Topcoat-Delta® DHS 2.8 VOC Polyurethane


Mix Ratio



2 parts DHS
1 part DDH526

DHS COLOR: Matched
to current vehicle color.

- Blow off unit using clean white cloths in the process.
- Tack off unit.
- Mix PPG's **DHS** topcoat color. Refer to product information bulletin FL500.



Pot life is 1 hour at 70° F. (High heat and humidity will shorten pot life.)

- Apply **DHS** topcoat until hiding is achieved. Flash time between coats is 10 to 15 minutes at 70° F.

	Wet	Dry
Min total film build per coat	1.5 mils	.9 mils
Max total film build per coat	2.0 mils	1.2 mils

- Apply color while maintaining a safe gun distance of 10-12 inches.
- Allow to flash for 10 minutes prior to force drying.
- Force dry for 60 minutes @ 120° F or 30 minutes @ 180° F.

7. Repair of Topcoat




- Remove defects with 320 grit or finer sandpaper or abrasive pad.
- Solvent clean with **DX436** Cleaner. Refer to product information bulletin FL100.
- Tack off area.
- When the removal of coating does not expose bare metal:
 - Feather or scuff the surrounding area 1-2 inches beyond the affected area.
 - Apply the topcoat.
 - Melt the edge of repair coatings by applying **DX830** Universal Blender.
- If the damage exposes bare metal:
 - Primer must be reapplied using PPG's **DPU217** @ 2.1 VOC.
 - Scuff the topcoat color area one-inch from where primer has been applied.
 - Apply topcoat color.
- Melt the edge of repair coatings by applying **DX830** Universal Blender

8. Notes

Pot Life and Drying

- **For every 15° increase in temperature, the pot life and dry time of a product is cut in half.**
- **For every 15° decrease in temperature, the time will double.**
- Product cross-linking and curing of 2K catalyzed products slows significantly below 60° F. Paint will not dry properly if subject to cool temperatures during initial cure.

9. Safety

	IMPORTANT: The above solvents and paint components contain materials that may be hazardous to your health. Read and be sure that you understand the warning messages on the labels of all components.
	Follow instructions for positive airline respirator use. Wear eye and skin protection. Observe all applicable precautions.
	See Material Safety Data Sheet and labels for additional safety information and handling instructions.

APPENDIX C2 - PPG INDUSTRIES PAINT SPECIFICATION

1. Scope

The scope of this specification defines the minimum procedures and qualifications that must be met when applying coatings to the vehicles operated by Caltrans.

1.1 Acceptable paint products and paint procedures are listed in Section 6. Only those products listed are acceptable products for Caltrans vehicles. Suppliers of material shall not deviate from these specified products or established color requirements unless written approval is obtained from Caltrans.

2. Safety Documentation

2.1 PPG Industries shall have a Material Safety Data Sheet available for each product of the coatings system.

2.2 PPG Industries will also furnish safety handling procedures specific to the spray application of the coating system to insure minimum hazard to operating personnel.

2.3 Safety instruction to include information on handling precautions, proper protective equipment and recommended treatment(s) for exposure to skin, eyes and internal ingestion.

2.4 The coatings applicator shall be responsible for compliance with local, state and federal fire codes and regulations pertaining to safety, industrial hygiene and the environment.

2.5 The coatings applicator will keep updated Material Safety Data Sheets on file for the coatings being used.

3. Preparation of Paint Materials

3.1 All coating material shall be delivered to Caltrans or a designated shop in the original, undamaged and unopened containers bearing PPG Industries name, brand and number.

3.2 Catalysts, thinners and additives shall be from PPG Industries.

3.3 All paint materials shall be prepared for the use in strict accordance with PPG Industries latest written recommendation.

3.4 Before application, all paints should be thoroughly mixed in accordance with PPG Industries latest written recommendation.

3.5 Prior to painting, the coatings applicator is to verify the color to original standard. If the color is deemed useable the coatings applicator can begin painting. If the color is unacceptable the supplier is to be contacted about color discrepancy before painting takes place.

3.6 No paint materials for which the PPG Industries stated pot life has been exceeded may be applied or mixed into a new mixed solution of coatings.

3.7 All paint materials shall be stored in a clean, dry and well-protected place. Materials shall be kept away from sparks, flames, direct sunlight and excessive heat or cold. Once the coatings supplier delivers materials, the coatings applicator accepts the responsibility for the protection and safety of material.

4. General Paint Requirements

4.1 The coatings applicator shall follow PPG Industries instructions regarding handling preparing, and applying the coating, including paint storage, straining, mixing, viscosity, usage of thinners and pot life.

4.2 Special attention will be given to proper application of coatings according to the specified dry film thickness recommendations of PPG Industries.

4.3 When applied according to PPG Industries instructions to a smooth surface, the cured coating system shall produce a finish with no runs,

sags, craters, pinholes, or other defects when compared to the approved standard.

4.4 Product or technical data bulletins should be consulted for any needed information above that which has been outlined herein.

4.5 All paint materials shall be prepared and applied in accordance with this specification and PPG Industries latest written recommendation prior to paint application.

4.6 Due to the varying nature of substrates, coatings should be tested on sample standards to ensure compatibility of coatings with substrate and cleaning methods utilized.

4.7 Apply product only when air, product or surface temperature is above 50° F (10° C) and when the surface temperature is at least 5° F (3° C) above the dew point.

5. Initial Cleaning and Preparation

5.1 When cleaning a vehicle for refinishing tar, grease, grime, silicones, waxes and dirt shall be completely removed from the vehicle.

5.2 Surfaces on all vehicles shall be sanded, stripped or blasted, where necessary, to ensure proper surface preparation.

5.3 Before painting, all repairs must be completed. Any filler material used in the repair must be compatible with all chemicals and coatings used during the refinishing process.

5.4 Mask all non-painted surfaces (glass, plastic, rubber, etc), prior to the sanding, stripping or blasting operation.

5.5 Once the truck has been sanded, stripped or blasted the coating application must begin immediately to avoid flash rusting or contamination of the surface.

5.6 Review the Caltrans Paint Procedure for additional information.

6. Application of Coating System

The following coating systems have been recommended as viable coatings systems for Caltrans vehicles. Painters shall consult the proper product bulletins for application information on the listed coating systems. All bulletins should be reviewed before applying any coatings system.

Cleaner (s) DRS Delta® Cleaners	Bulletin Number FL 100
Primer(s) System ID: DPU217 Delta® 2.1 VOC Polyurethane Primer	Bulletin Number FL304
TOPCOAT(s) System ID: DHS Delta® 2.8 VOC High Solids Polyurethane Orange: PPG#61696 Fleet-White: PPG#90604 Black: PPG#9714 Gray: PPG#35937 White: PPG#91327	Bulletin Number FL500
CLEARCOAT(s) SYSTEM ID: DCU2070 Delta® Urethane Clear	Bulletin Number FL600

7. Coatings Supplier Requirements

7.1 PPG Industries will provide at the request of the end user on site training for the usage of the products outlined.

7.2 PPG Industries shall provide technical service on site in relation to the handling and use of the specified products.

8. Resolution of Conflicts

8.1 The coatings applicator shall be responsible for requesting prompt clarification when instructions are lacking, conflicts occur in the specification and or PPG Industries literature, or procedure specified is not clearly understood.

8.2 In the event that the coatings applicator fails to resolve these conflicts, the coatings applicator shall be responsible for handling the discrepancies.

9. Specification Approval

Approved by			
Title			
Office Address			
State or Province Postal Code		Phone	
Signature		Date	
PPG Associate	Tim Bellefleur		
Title	Market Development Manager, Commercial Coatings		
Office Address	19699 Progress Drive		
State and Zip Code	19699 Progress Drive	Phone	440 572 6182
Signature		Date	

APPENDIX D

SHERWIN-WILLIAMS PAINT & PROCESS SPECIFICATION

Viewing the following documents requires Adobe Acrobat Reader. Return to this document by pressing your browser's "Back" key. These documents are provided by the paint/coating supplier and do not alter or modify the requirements of the Caltrans' standard.

Sherwin-Williams DTM Primers E2A819
Sherwin-Williams DTM Primers E2A933
Sherwin-Williams DTM Primers PSE2110
Sherwin-Williams Genesis 2.8
Sherwin-Williams Genesis 3.5